



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

For

: Application of Miller et al.
: METHOD AND APPARATUS FOR
: TRANSPORTING POWDER COATING
: MATERIAL FROM A BOX SHAPED
: CONTAINER
: 08/126,391
: September 23, 1993
: 3102
: A. Pike
: NR-103CIP

Serial No.
Filed
Group Art Unit
Examiner
Our Docket No.

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March 30, 1995

HONORABLE COMMISSIONER OF
PATENTS & TRADEMARKS
WASHINGTON, D.C. 20231

#12/B
Jones
4/18/95

AMENDMENT

Sir:

This is in response to the Office Action mailed November 30, 1994 and having a period for response set to expire on February 28, 1995. A one (1) month extension of time, attached hereto, extends the period of response to March 30, 1995. Please amend the referenced application as follows:

IN THE SPECIFICATION

On page 21, line 1, delete "In the claims:" and insert --We claim:-- in its place.

On page 1, line 5, insert --(now abandoned)-- after "1992--."

On page 5, line 14, delete "drawing" and insert --draws-

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- before "powder."

On page 5, line 16, delete ", the" and insert --. The-- in its place.

On page 5, line 18, delete "so that" and insert --of-- in its place.

On page 7, line 29, delete "Plus™" and insert --PLUS®-- in its place.

On page 11, line 12, delete "11b" and insert --10b-- in its place.

On page 18, line 33, delete "220" and insert --228-- in its place.

IN THE CLAIMS

Please amend the following claims 1-5, 8, 10-14, 17, 18, 36, 37 and 39 as follows:

1. (twice amended) An apparatus for unloading powder from a plastic liner within a box-shaped container, said apparatus comprising:

a support structure;

a cradle mounted to said support structure for supporting said box-shaped container at an angle with respect to horizontal in a tilted position, said box-shaped container having a [lower most] lowermost interior portion in said tilted position;

a pick-up tube having a lower inlet end with at least

one inlet opening adapted to being positioned within said container in said lowermost interior portion, said pick-up tube having an upper outlet end for discharging the powder; [and]

a support arm projecting out over the top of said box-shaped container from said support structure to support said pick-up tube so that said pick-up tube can assume a substantially vertical orientation when said lower inlet end of said pick-up tube is positioned in said lowermost interior portion of said box-shaped container; and

a powder pump associated with said upper outlet end [and] of said pick-up tube for drawing the powder from said plastic liner within said box-shaped container, into said at least one inlet opening of said pick-up tube, and discharging the powder from said outlet end.

2. (twice amended) The apparatus of claim 1 wherein said cradle has a base plate and two adjoining side plates mounted vertically upward therefrom and converging therewith to form a cradle corner, said cradle being adapted to support said container with a container bottom surface on said base plate, two adjoining container sides against said side plates, and a lower container corner in said cradle corner, said lower container corner comprising said lowermost interior portion, and [the] a plane through said base plate extending at [an] said angle with respect to said

horizontal.

3. (twice amended) The apparatus of claim 1 further comprising a vibrator associated said cradle for moving said powder [material] towards said [lower container corner] lowermost interior portion of said box-shaped container.

4. (amended) An apparatus for unloading powder from a box-shaped container, said apparatus comprising:

a support structure;

a cradle mounted to said support structure for supporting said box-shaped container at an angle with respect to horizontal in a tilted position, said box-shaped container having a lowermost interior portion in said tilted position;

a pick-up tube having a lower inlet end with at least one inlet opening adapted to being positioned within said container in said lowermost interior portion, said pick-up tube having an upper outlet end for discharging the powder; and

a powder pump associated with said upper outlet end of said pick-up tube for drawing the powder from said box-shaped container, into said at least one inlet opening of said pick-up tube and discharging the powder from said outlet end;

[The apparatus of claim 1 wherein] said [hollow] pick-up

tube [has] having a closed lower end.

5.(amended) The apparatus of claim 4 wherein said [hollow] pick-up tube has two or more inlet holes extending through [the] a wall[s] of said tube above said closed lower end.

6. The apparatus of claim 3 wherein said vibrator is attached to said cradle for vibrating said powder to loosen the powder and thereby encourage said powder to move by gravity towards said lowermost interior portion of said container.

7. The apparatus of claim 6 further comprising a vibration damping device installed between said cradle and said support structure.

8.(twice amended) The apparatus of claim 1 wherein said powder pump is attached to said upper outlet end of said pick-up tube for transferring the powder drawn out of said box-shaped container into a feed tube for delivery to a powder spray gun.

9. The apparatus of claim 8 wherein said feed tube has an outlet which is directly connected to a powder inlet of said powder spray gun.

10.(twice amended) An apparatus for unloading powder from a plastic liner within a box-shaped container, said apparatus comprising:

a support structure;

a cradle mounted to said [platform] support structure for supporting said box-shaped container in a tilted position with respect to horizontal, said box-shaped container having a lowermost interior portion in said tilted position;

a pick-up tube having a lower end and at least one inlet opening being adapted to be positioned within said box-shaped container in said lowermost interior portion, said pick-up tube having an upper outlet end for discharging the powder, said lower end of said pick-up tube being closed and said inlet opening being positioned above said closed end; and

a powder pump for drawing the powder from said box-shaped container through said inlet opening of said pick-up tube and out of said upper outlet end.

11.(twice amended) The apparatus of claim 10 wherein said cradle has a base plate and two adjoining side plates mounted vertically upward therefrom and converging therewith to form a cradle corner, said cradle being adapted to support a bottom surface of said box-shaped container on said base plate, and two adjoining sides of said box-shaped

container against said side plates, and a lower container corner of said box-shaped container in said cradle corner.

12.(twice amended) The apparatus of claim 10 further comprising a vibrator associated with said cradle for moving said powder within said box-shaped container towards said lowermost interior portion.

13.(twice amended) The apparatus of claim 10 wherein said support structure is equipped with wheels so that said apparatus for unloading the powder can be easily moved as a unit.

14.(twice amended) The apparatus of claim 12 further comprising a control unit mounted on said support structure, said control unit controlling said powder pump for drawing the powder from said box-shaped container and said vibrator for moving said powder within said box-shaped container towards said lowermost interior portion.

15. The apparatus of claim 12 wherein said vibrator is attached to said cradle for vibrating said powder to loosen said powder and thereby encourage said powder to move by gravity towards said lowermost interior portion.

16. The apparatus of claim 15 further comprising a

vibration damping isolation mount installed between said cradle and said support structure.

17.(twice amended) The apparatus of claim 10 wherein said powder pump is attached to said upper outlet end of said tube for transferring the powder drawn out of said box-shaped container into a feed tube for delivery to a powder spray gun.

18.(twice amended) The apparatus of claim 14 wherein said powder pump is attached to said upper outlet end of said tube for transferring the powder drawn out of said box-shaped container into a feed tube for delivery to a powder spray gun.

19. The apparatus of claim 18 further comprising means for electrically interconnecting said control unit to said powder pump and said support structure and a ground strap for electrically grounding said control unit.

36.(twice amended) An apparatus for unloading powder from a box-shaped container, said apparatus comprising:
a support structure;
a cradle mounted to said support structure for supporting said box-shaped container at an angle with respect to horizontal in a tilted position, said box-shaped

container having a [lower most] lowermost interior portion in said tilted position;

a pick-up tube constructed of spaced inner and outer concentric tubes, a lower inlet end of said pick-up tube having at least one inlet opening in said [box shaped] outer concentric tube adapted to being positioned within said container in said lowermost interior portion, a vent hole in said outer tube, and an upper outlet end of said pick-up tube for discharging the powder; and

BZ
a powder pump associated with said upper outlet end of said pick-up tube for drawing the powder from said container into said lower inlet end of said pick-up tube and drawing air through said vent hole and down through an annular space between said [inner concentric tube] spaced inner and outer concentric tubes whereby said air and said powder are mixed to fluidize said powder and discharge said powder from said outlet end of said pick-up tube.

37. (amended) [The apparatus of claim 36 wherein] An apparatus for unloading powder from a box-shaped container, said apparatus comprising:

a support structure;

a cradle mounted to said support structure for supporting said box-shaped container at an angle with respect to horizontal in a tilted position, said box-shaped container having a lowermost interior portion in said tilted

position;

a pick-up tube constructed of spaced inner and outer concentric tubes, a lower inlet end of said pick-up tube having at least one inlet opening in said outer concentric tube adapted to being positioned within said container in said lowermost interior portion, a vent hole in said outer tube, and an upper outlet end of said pick-up tube for discharging the powder;

a powder pump associated with said upper outlet end of said pick-up tube for drawing the powder from said container into said lower inlet end of said pick-up tube and drawing air through said vent hole and down through an annular space between said spaced inner and outer concentric tubes whereby said air and said powder are mixed to fluidize said powder and discharge said powder from said outlet end; and

said pick-up tube [has] having a closed lower end.

38. The apparatus of claim 37 wherein said pick-up tube has at least two inlet openings extending through said outer concentric tube above said closed lower end.

39. (amended) An apparatus for unloading powder from a box-shaped container said apparatus, comprising:

a support structure;

a cradle mounted to said support structure for supporting said box-shaped container at an angle with

respect to horizontal in a tilted position, said container having a [lower most] lowermost interior portion and an uppermost portion in said tilted position;

a pick-up tube constructed of spaced inner and outer concentric tubes, a lower inlet end of said pick-up tube having at least one inlet opening in said outer concentric tube adapted to being positioned within said container in said lowermost interior portion, a vent hole in said outer tube, and said pick-up tube extending through a bracket installed on said uppermost portion of said box-shaped container and having an upper outlet end for discharging powder; and

a powder pump associated with said upper outlet end [and] of said pick-up tube for drawing powder from said box-shaped container into said inlet opening of said pick-up tube and discharging the powder material from said outlet end.

40. The apparatus of claim 39 wherein said pick-up tube has a closed lower end.

41. The apparatus of claim 40 wherein said pick-up tube has at least two inlet openings extending through said outer concentric tube above said closed lower end.

Please add the following new claim 42..

B3 Sub C3 42. The apparatus of claim 1 wherein said support arm includes an opening vertically aligned with said lowermost interior portion of said box-shaped container, with said pick-up tube being inserted through said opening.

IN THE ABSTRACT

On page 31, line 3, please delete "box shaped" and insert --box-shaped-- in its place.

On page 31, line 8, please delete "container's" and insert --containers-- in its place.

On page 31, line 12, insert a --,-- after "tube--."

On page 31, line 16, delete "means" and insert --isolation mount-- in its place.

IN THE DRAWINGS

A letter describing proposed drawing corrections is attached.

DECLARATION

A photocopy of the new Declaration is attached. The original will follow.

PETITION FOR EXTENSION OF TIME

A Petition under 37 C.F.R 1.136(a) is attached for a one (1) month extension of time.

REMARKS

Claims 1-42 are pending in the referenced application. Claims 20-35 have been withdrawn from further consideration as being drawn to a nonelected invention.

Claims 39-41 are pending and should be examined once a genuine claim is held allowable.

Claims 2-7, 10-19, and 36-38 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims have been amended to overcome the objections raised by the Examiner and therefore, these rejections should respectfully be withdrawn.

Claims 1-19 and 36-38 were objected to because of a number of formalities set forth on the Office Action dated November 30, 1994. These formalities have been corrected in accordance with the suggestions of the Examiner and therefore, the objections should respectfully be withdrawn.

Claims 1, 3, 6-8 and 36 were rejected under Section 102(b) as anticipated by Mulder (U.S. 4,505,623).

Claim 1 has been amended to recite a support arm projecting out over the top of the box-shaped container from the support structure to support the pick-up tube so that the pick-up tube can assume a substantially vertical orientation when the lower inlet end of the pick-up tube is positioned in the lowermost interior portion of the box-shaped container. This claimed structure is not shown in the Mulder reference. Claim 1 has further been amended to recite a plastic liner within the box-shaped container to further distinguish the claimed structure from Mulder.

Mulder suggests manufacturing a special lid for a powder drum with the pick-up tube extending through a sleeve installed through the lid. Boxes come in various sizes so if the teachings of Mulder were applied to a box, the user would need different size lids for the different size boxes. It would also be difficult to effectively secure a lid to the top of a box given the fact that the plastic liner normally extends out the top of box and flaps are hinged from the top four edges of the box. Therefore, even if the user had a proper size lid for each box, it would be difficult to secure the lid to the top of the box in such a way as to reliably and securely support the pick-up tube in a substantially vertical orientation. This is particularly

true due to the fact that the top of the box would not be level but would be slanted downwardly, so that the lid would tend to slide off the top of the box.

The support arm element, now set forth in claim 1, avoids the necessity of having to have a lid for each size box and of effectively securing the lid to the box by reliably supporting the pick-up tube in a vertical orientation in an open box with no top. Therefore, claim 1, as now amended, is distinguished from Mulder and the 102 rejection should respectfully be withdrawn.

With respect to Claim 36, Mulder does not show the small vent hole in the outer tube which is recited in Claim 36. Instead, Mulder shows an outer tube which is completely open at the top. For the present situation, where the top of the box is completely open, an open top of the outer tube would allow too much air into the pick-up tube with the result that too much air would be drawn up through the tube and not enough powder. The small vent hole concept permits just enough air to pass down between the outer and inner tubes to relieve any blockage at the bottom of the tube without otherwise significantly affecting the amount of powder which is pumped from the box. Therefore, Applicants respectfully submit that Claim 36 as written should be patentable over Mulder.

Claims 1 and 2 were rejected under Section 103(b) as being unpatentable over United Kingdom Patent No. 2,195,975 (Karpisek) in view of Mulder (U.S. 4,505,623). Both Mulder and Karpisek rely on the pick-up tubes of their respective devices passing through holes in specially manufactured lids on top of a box or drum. The disadvantages of this arrangement relative to Mulder were discussed above. With respect to Karpisek, again, different size lids would be required for the different size boxes and it would be difficult to securely attach these lids to the top of the boxes in such a way that the pick-up tubes would be reliably supported in a substantially vertical position. Further, in Karpisek the pick-up tube would initially have to be pushed along one side corner of the box down to the bottom corner of the box. As the tube was pushed to the bottom corner of the box along the side corner, in cases where the box had a plastic lining, such as is required by amended Claim 1, the plastic bag would most likely get caught at some point by the lower edge of the tube. This would result in the plastic liner being torn by the tube with the result that powder would spill into the interior of the box between the liner and the box.

To avoid this problem, the present invention, as claimed in amended Claim 1, includes a support arm projecting out from the support structure to maintain the

pick-up tube in a substantially vertical position when the lower inlet end of the pick-up tube is positioned in the lowermost interior portion of the box-shaped container. The amended claim also recites that the box-shaped container has a plastic liner as mentioned above. These amendments and the corresponding advantages which are discussed should make Claim 1 patentable over this combination of references.

Claim 2 is dependent on Claim 1 and should be patentable for the same reasons.

Claims 3 and 6-8 are dependent on Claim 1 and therefore should be patentable for the same reasons given with respect to Claim 1.

Claim 9 was rejected under Section 103 as unpatentable over Mulder in view of Sharpless (U.S. 4,615,649). Claim 9 is dependent on Claim 8 which is in turn dependent on Claim 1 and therefore this claim should be patentable for the same reasons discussed above with respect to amended Claim 1.

Claim 4 has been amended to include all of the limitations of claim 1 and to cure the 112 objection. Therefore, claim 4 is allowable.

Claim 5 is dependent on Claim 4 and should also be

allowable.

Claim 10 was amended to overcome the 112 objections and is therefore allowable.

Claims 11-19 are dependent on Claim 10 and should also be allowable.

Claim 37 has been rewritten as an independent claim to include the limitations of claim 36 and to remove the 112 objections. Therefore, claim 37 should be allowable.

Claim 38 is dependent upon claim 37 and is allowable. Newly submitted claim 42 is dependent upon claim 1 and should be allowable for the same reasons.

A new Declaration is submitted which identifies the prior applications.

The Abstract and Disclosure have been amended to remove the objections set forth in the Office Action. Therefore, these objections should respectfully be withdrawn.

The prior art made of record but not relied upon has been considered. However, there is no discussion of that art since it was not applied to the claims.

A letter describing the corrections to the drawings is attached along with marked up drawings in response to the objections to the drawings in the Office Action.

Favorable reexamination and reconsideration are respectfully requested.

Respectfully submitted,



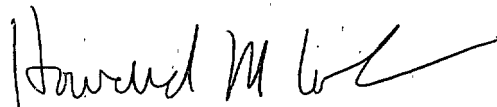
Howard M. Cohn
Registration No. 25,808

Patent & Trademark Attorney
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: **HONORABLE COMMISSIONER OF PATENTS & TRADEMARKS**, Washington, D.C. 20231, on March 30, 1995.

Howard M. Cohn
Name of person mailing



Signature of person mailing

Docket No. MR103CIP

DECLARATION,
POWER OF ATTORNEY AND PETITION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: METHOD AND APPARATUS FOR TRANSPORTING POWDER COATING MATERIAL FROM A BOX SHAPED CONTAINER

the specification of which (check one)

is attached hereto.

X was filed on 9/23/93 as Application Serial No. 08/126,391 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate on the same invention and having a filing date before that of the application of which priority is claimed:

PRIOR FOREIGN APPLICATION(S)

Priority Claimed:

(Number)	(County)	(Day/month/year filed)	Yes	No
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I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to the patentability of this application as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

<u>07/876/610</u>	<u>April 30, 1992</u>	<u>Abandoned</u>
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

[illegible]

(REV. 2/17/93)

And, I hereby appoint Howard M. Cohn (R.25,808), Thomas L. Moorhead (R. No. 24,577), Michael L. Gill (R. No. 25,114), Edmund J. Wasp (R. No. 29,598) and Raymond J. Slattery III (R. No. 32,108), in care of Nordson Corporation, 28601 Clemens Road, Westlake, Ohio 44145, and telephone number (216) 892-1580, my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

All correspondence should be sent to
Howard M. Cohn
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Cleveland, Ohio 44113.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Wherefore I or we pray that Letters Patent be granted to me or us for the invention or discovery described and claimed in the foregoing specification and claims, and I or we hereby subscribe my or our names to the foregoing specification and claims, declaration, power of attorney and this petition.

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2011 FEB 11 12:11

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2025 FEB 27



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of: Miller et al.

Serial Number: 08/126,391

Filed: September 23, 1993

For: METHOD AND APPARATUS FOR TRANSPORTING POWDER COATING MATERIAL
FROM A BOX-SHAPED CONTAINER

Group Art Unit: 3102

Examiner: A. Pike

Our Docket No.: NR-103CIP

March 30, 1995

THE COMMISSIONER OF PATENTS & TRADEMARKS
Washington, D.C. 20231

Sir:

Transmitted herewith is an Amendment in the above-identified Application.

☐ No Additional fee is required.

The fee has been calculated as shown below.

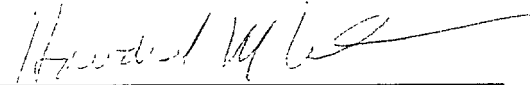
CLAIMS AS AMENDED						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Additional Fees
Total Claims	42	Minus	** 41	= 0	\$22	= 22
Indep Claims	7	Minus	*** 7	= 0	\$76	= 0
				=		= 0
			Total Additional Fee For This Amendment		\$	22

** If the "Highest No. Previously Paid For" is less than 20 write "20".

*** If the "Highest No. Previously Paid For" is less than 3 write "30".

☒ A check in the amount of \$ 132.00 is attached and includes the fee
for a one month extension of time.☐ Charge \$ _____ to Deposit Account No. 03-2415.
A duplicate copy of this sheet is enclosed.

Please charge any additional fees or credit overpayment
to Deposit Account Number 03-2415.

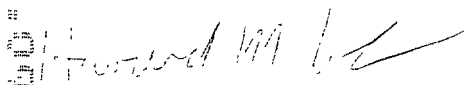

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Howard M. Cohn
Name of person mailing


Signature of person mailing